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SHORT REPORT

Management of Infected Amputation Sites Following Failed Prosthetic Bypass Grafts

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Introduction

Prosthetic infra-inguinal bypasses allow limb salvage surgery in patients who have no suitable venous conduit. Unfortunately failed prosthetic grafts frequently result in amputation. In these circumstances it has been our practice to divide and ligate the prosthetic graft as proximally as possible at the time of the amputation. This has the advantage of avoiding further surgery in the groin, and the need to patch the native artery at the site of the proximal end anastomosis.[1]

We present three cases seen over a six-month period in which amputated stumps containing a ligated polytetrafluoroethylene (PTFE) graft became infected with methicillin resistant *Staphylococcus aureus* (MRSA), and despite the appropriate regime of antibiotics further revision surgery was required with subsequent removal of the graft. In all three cases cultures of the excised PTFE graft also grew MRSA.

Case 1

An 80-year-old man presented with a two-week history of a painful left leg following occlusion of a PTFE femoro–popliteal bypass graft. The left femoral pulse was palpable but the leg was not viable below knee level. An above knee amputation (AKA) was thus performed. Three weeks later the amputation stump discharged a purulent exudate that grew MRSA. Subsequently the wound dehisced and a high above knee amputation was performed with total excision of the PTFE graft resulting in normal stump healing. The common femoral artery (CFA) was closed with endarterectomised superficial femoral artery (SFA).

Case 2

An 81-year-old woman presented with an acutely ischaemic left leg. Arteriography confirmed occlusions of the left common iliac artery (CIA) as well as the left superficial femoral artery (SFA). This was treated with a left CIA stent, and a left femoro–popliteal below knee bypass graft using PTFE. One week later the graft occluded and an emergency thrombectomy was performed. The forefoot ischaemia did not resolve and a transmetatarsel amputation was performed. Unfortunately the graft re-occluded and a left below knee amputation (BKA) was performed. The amputation stump failed to heal (Fig.1) and swabs from the wound cultured MRSA. Thus, two weeks later an AKA was performed, with simultaneous removal of the PTFE graft (Fig. 2) and closure of the CFA with a vein patch. Following this, the AKA wound healed successfully.

Case 3

A 70-year-old man presented with an ischaemic leg six months after a PTFE femoro–distal bypass. Following arteriography, the thrombosed graft was successfully thrombolysed. Unfortunately the patient's rest pain failed to resolve despite receiving Iloprost infusions and a chemical sympathectomy. He thus underwent a left BKA. Post-operatively he developed a pyrexia and wound swabs confirmed MRSA. He required a

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Fig. 1. Infected below knee stump.

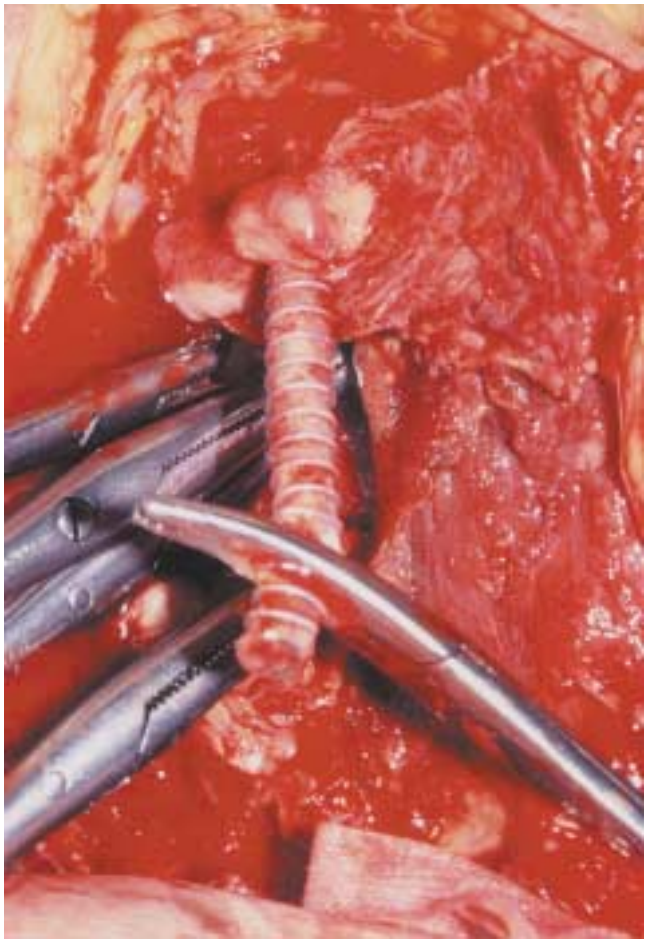

Fig. 2. Intraoperative photograph of same patient. Note purulent exudate from PTFE graft.

stump revision procedure, and at this time the PTFE graft was removed with closure of the CFA with endarterectomised SFA. This resulted in satisfactory healing.

Discussion

The most desirable outcome of an amputation is rapid wound healing and early patient rehabilitation.[2] The incidence of nosocomial acquired MRSA is increasing and naturally jeopardises wound healing. Infection of prosthetic grafts can be disastrous and apart from delaying rehabilitation, may potentially be lethal.[3]

All three patients had appropriate treatment for MRSA once the culture results were known. We cannot be certain whether the MRSA originated from the graft or whether the graft was secondarily infected from the wound. Nevertheless, it is clear from our experience that, in the presence of MRSA stump wound infections, an underlying graft must be presumed also to be infected. We are convinced that effective stump healing can be best achieved by total graft excision at the time of the initial amputation. We also recommend that endarterectomised SFA or a vein patch should be used over the native artery, and under no circumstances should a prosthetic patch be used. Furthermore, if the distal extremity appears gangrenous or infected, the groin should be opened first to prevent any risk of contamination.

Although a policy of total graft excision has been

previously advocated[1,2] the temptation to perform a lesser operation is great. With the advent of MRSA, and its potential to infect even vein grafts,[4] total graft excision should probably be the treatment of choice.

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